

Patent Claims

1. Arrangement of a light diffracting element for the separation of excitation light and emission light in a microscope beam path, preferably in a confocal microscope, and in particular in a laser scanning microscope.
2. Arrangement according to claim 1, wherein the light diffracting element is traversed both by the excitation light and the emission light.
- 2a. Arrangement according to claim 2, wherein the light emitted by the sample comprises fractions of the excitation light and of wavelength-shifted fluorescence fractions.
3. Arrangement according to one of the preceding claims, wherein the light diffracting element influences at least one excitation wavelength by diffraction, whereas other wavelengths emitted by the sample pass in uninfluenced form through the element and are thereby spatially separated from the excitation light.
- 3a. Arrangement according to one of the preceding claims, wherein the light diffracting element is switched by way of a frequency change from a first wavelength of a first laser to a second wavelength of a second laser.
4. Arrangement according to one of the preceding claims, wherein at least one optical element influencing the light direction is provided in the excitation beam path upstream of the element and/or in the detection beam path downstream of the element in order to improve light fraction separation.
5. Arrangement according to one of the preceding claims having an AOTF as the light diffracting element.

6. Arrangement according to one of the preceding claims with a reflection element as the optical element.
7. Arrangement according to one of the preceding claims having a light refracting element as the optical element.
8. Arrangement of a light diffracting element for the separation of excitation light and emission light in a microscope beam path, preferably in a confocal microscope and in particular in a laser scanning microscope, more especially according to one of the claims 1 to 7, it being used also for regulating the excitation intensity.
9. Arrangement of several light diffracting elements in a microscope beam path, preferably in a confocal microscope and in particular in a laser scanning microscope, more especially according to one of the claims 1 to 8, in which use is made thereof simultaneously or individually for feeding in different wavelengths.
10. Arrangement according to claim 9 having several light diffracting elements, wherein in the direction of the detection firstly AOTF and then AOM are used.
11. Arrangement according to one of the preceding claims, wherein AOTF and/or AOM are used as light diffracting elements.